

IN THE UNITED STATES
PATENT AND TRADEMARK OFFICE
BEFORE THE EXAMINING CORPS

IN RE APPLICATION OF

CHERYL GOLDMAN

FOR A

SYSTEM FOR LOCATING

A GOLF BALL

1

BACKGROUND OF THE INVENTION

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Field of the Invention:

3 The present invention relates to a system. More particularly,
4 the present invention relates to a system for locating a golf ball.

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Description of the Prior Art:

6 Numerous innovations for object locating devices have been
7 provided in the prior art that will be described. Even though
8 these innovations may be suitable for the specific individual
9 purposes to which they address, however, they differ from the
10 present invention.

11 **FOR EXAMPLE**, U.S. Patent Number Des. 391,508 to Lucas teaches
12 the ornamental design for a combined transmitter and receiver for
13 locating lost keys.

14 **ANOTHER EXAMPLE**, U.S. Patent Number 3,782,730 to Horchler
15 teaches an electronic golf ball comprising a central resilient
16 sphere, a mass of elastic material surrounding the sphere and an
17 outer casing, the central sphere including an electric squeegging
18 oscillator circuit, a battery therefor and a transmitting coil, all
19 enclosed in a spherical mass of a set resin which forms a solid

1 core, the spherical mass being located with close fit in a hollow
2 spherical cavity formed in the central resilient sphere. The
3 battery is a mercury cell located within the transmitting coil, as
4 are the other components of the squeegging oscillator circuit. The
5 electrical circuit may include components which permit the
6 oscillator to be turned on and off when the golf ball is brought
7 into, and then moved out of, an A.C. magnetic field having a
8 predetermined frequency.

9
10 **STILL ANOTHER EXAMPLE**, U.S. Patent Number 4,101,873 to
11 Anderson *et al.* teaches miniaturized coded transmitter and battery
12 powered receivers that are selectively responsive to a predetermined
13 code transmission and are provided with a miniaturized audible
14 signal generator in each receiver such that the receiver, when
15 interrogated by a proper signal, will respond audibly. By placing
16 such receivers on commonly used objects such as eyeglasses, purses,
17 and other personal articles, audible location of these articles is
18 accomplished by interrogating each object with a corresponding
19 coded signal and following the audible response from the object to
20 the position of the object to locate the latter. The duty cycle of
21 the receiver is very short and recurrent over intervals less than
22 the known energization interval of the transmitter to insure
23 reception, but materially minimize the power consumption of the
receivers.

YET ANOTHER EXAMPLE, U.S. Patent Number 4,507,653 to Bayer teaches a miniature, battery-operated electronic unit adapted to be attached to a common article, such as keys or eyeglasses. The unit is responsive to a plurality of sounds for emitting audible tones to enable a misplaced article to be located. A sound detecting and indicating circuit provides the audible tones upon receipt of a sequence of sounds falling within predetermined frequency, time spacing, and amplitude ranges. The correct sequence of sounds is generated by the user by clapping, whistling, or making any other loud sounds, and no additional transmitting device is required. Improper sequences of sounds are prevented from producing false activation of the unit. Extremely low power consumption, resulting in part from CMOS technology, allows the unit to remain on continuously for a period of six to nine months using standard camera (button cell) batteries. Special battery-saver circuitry prolongs battery life. The unit can be fabricated using gate array or custom chip technology, which results in extremely small size and low cost of manufacture. A visual indicator allows the user to learn proper operation.

STILL YET EXAMPLE, U.S. Patent Number 5,423,549 to Englmeier teaches a device with a signal receiving unit for locating golf balls. Each golf ball is associated with a transmitting unit and the signals emitted by each transmitting unit are detected by the signal receiving unit. The transmitting unit is associated with an

energy store as an operating voltage source. The device includes a charging circuit with an energy transmitter for wireless transmission of the electrical energy to an energy receiver connected in front of the energy store. Immediately after the charging phase of the energy store, the transmitting unit starts sending transmission signals and in so doing discharges the energy store. The transmitted signals received by the signal receiving unit are fed to an evaluation circuit which produces an output signal for locating the golf ball. This output signal is then fed to a display unit. After a certain discharge time, the transmitting unit stops transmitting the transmission signals. The golf ball is located only during this limited transmission time. Golf balls which have been mishit can be located rapidly and simply using the device.

YET STILL EXAMPLE, U.S. Patent Number 5,434,789 to Fraker et al. teaches a GPS golf diagnostic system for receiving radio signals from earth orbiting GPS satellites, determining the latitudinal, longitudinal and altitudinal coordinates of the diagnostic system, and computing the distance between these coordinates and a plurality of known positions. The diagnostic system of the present invention utilizes the computed data for informing the user of the distance between the present position of the golf ball and known positions such as previous ball position, green location and pin position. The diagnostic system is further

1 useful for keeping track of shot distances, clubs used, scores
2 obtained on each hole and total game scores for a plurality of
3 courses.

4 **STILL YET EXAMPLE**, U.S. Patent Number 5,447,314 to Yamazaki et
5 al. teaches a sound emitting golf ball for locating a golf ball
6 after it is struck by a golf club. The system comprises a
7 miniaturized electronic, battery powered piezoelectric sound
8 generator surrounded by a shock absorber that is embedded inside a
9 golf ball. The sound generating system is constructed with very
10 small, inexpensive shock resistant components and embedded at the
11 center of the golf ball, inside the shock absorber. The system can
12 be designed to operate in the audible or ultrasonic range.

13 **YET STILL EXAMPLE**, U.S. Patent Number 5,564,698 to Honey et
14 al. teaches a hockey puck with an electromagnetic transmitter. The
15 electromagnetic transmitter could include an infrared transmitter,
16 ultraviolet transmitter, radar repeater, RF transmitter or other
17 device for transmitting electromagnetic waves outside of the
18 visible spectrum. The electromagnetic transmitter is turned on
19 using a shock sensor and is turned off using a timer.

20 **STILL YET EXAMPLE**, U.S. Patent Number 5,626,531 to Little
21 teaches golf balls that have a passive tag at selected capacitance
22 inserted within their interior to enable detection of the presence

1 of the tag, and of the ball, using an electronic detecting system.
2 The tags are passive, being energized into emitting a signal by the
3 presence of a detector field of predetermined characteristics such
4 that the tag generates a responsive signal, which can be detected
5 by an adjacent detector circuit, to signal the presence of a tagged
6 ball. One field of use is for driving ranges, where the
7 unauthorized removal of range balls constitutes an unacceptable
8 loss for the proprietors of the establishment. The system also
9 lends itself to finding lost balls, using a hand-portable detector,
10 and to use with other types of game ball.

11 **YET STILL EXAMPLE**, U.S. Patent Number 5,686,891 to Sacca et
12 al. teaches a system for locating an object. The system includes
13 an electronic device, a wireless transmitter for outputting a
14 transmitted signal, and a receiver wherein one of the receiver and
15 the transmitter is mounted within the electronic device and the
16 other is positioned remote therefrom. The receiver comprises a
17 wake up timer circuit for periodically generating a wake up signal,
18 a wireless signal receiver being activated by the receipt of the
19 wake up signal from the wake up timer circuit for generating a
20 detect signal when the wireless signal receiver circuit receives
21 the transmitted signal from the transmitter, and an audible signal
22 generator circuit for generating an audible signal upon receipt of
23 the detect signal from the wireless signal receiver circuit. The
24 wake up timer circuit and the wireless signal receiver circuit are

disabled when the audible signal generator circuit generates the audible signal.

STILL YET EXAMPLE, U.S. Patent Number 5,772,534 to Dudley teaches a golf information system which provides for automatic detection of a golf cart position on a golf course by either a golfer on the cart or personnel in a golf course clubhouse. In one embodiment, a differential global positioning satellite receiver (DGPS) is utilized to detect a golf cart position and the detected position is compared with a digital data map where it is further transmitted to a golf cart display as well as to a clubhouse display, either automatically in a timed manner, or upon prompting by a golfer or clubhouse personnel. The system can be further used to send speed of play messages to a golfer from a clubhouse in order to speed up play, and can also be used to send emergency and acknowledgment signals from a golfer to a clubhouse in response to emergencies or messages displayed to the golfer. Furthermore, advertising messages can be displayed to a golfer from a clubhouse in response to clubhouse initiated signaling.

A typical application of the prior art system **10** of Dudley for locating a golf cart **12** on a golf course **14** by a golfer hitting a golf ball **16** can best be seen in **FIGURE 1**, which is a block diagram of a typical prior art system for locating a golf cart, and as such, will be discussed with reference thereto.

1 The golf course **14** has fixed objects **18** with locations and a
2 base computer **20**, which is preferably located in a club house **22**,
3 and which reads and triangulates the locations of the fixed objects
4 **18**, via a GPS **24**.

5 The golf cart **12** has a location and a portable computer **26**
6 that is linked by radio communication to the base computer **20** and
7 which is in communication with the GPS **24**.

8 The portable computer **26** has a display **28** that displays the
9 locations of the fixed objects **18** from the base computer **20**.

10 The base computer **20** determines the location of the golf cart
11 **12** relative to the locations of the fixed objects **18** already
12 determined and relays the location of the golf cart **12** back to the
13 portable computer **24** which displays on the display **28** the location
14 of the golf cart **12** relative to the fixed objects **18** already
15 displayed thereon.

16 **YET STILL EXAMPLE**, U.S. Patent Number 5,873,797 to Garn
17 teaches a method and system for obtaining accurate measurements of
18 distance of a golf ball from features of interest on a hole of a
19 golf course including tee boxes, cups, water hazards, sand traps,
20 rough areas adjacent fairway, and cart path, uses a golf cart
21 equipped with a computerized navigation system including a display

1 monitor. Survey data for the course are stored in the navigation
2 system database as part of a map of so that fixed positions of at
3 least some of the features of the course, including the cart path
4 and outline of the hole of the computerized navigation system, can
5 be selectively displayed in the map or portion thereof on the cart
6 monitor screen during play of the course. The navigation system
7 has a capability to detect and indicate the real time position of
8 the golf cart as an icon on the course map displayed on the monitor
9 screen, and has, in its database, a ball icon line approximating
10 the longitudinal center-line of the hole. A ball icon is
11 established distinct from the cart icon for display in the map on
12 the monitor screen, and is arranged to move along the ball icon
13 line in unison with movement of the cart icon along the cart path.
14 Distance measurements are enabled and displayed from the ball icon
15 to features on the map when the features are respectively selected
16 by a pointer on the monitor display. A positioning device is
17 provided to move the ball icon from the ball icon line to
18 approximate the position of a ball in play on the hole to measure
19 distance to a selected feature.

20 **STILL YET EXAMPLE,** is a sealed golf ball with remotely
21 activated audible sound generator powered by an electromagnetically
22 rechargeable battery taught by my U.S. Patent Number 6,011,466.

1 The configuration of my prior art sealed golf ball **50** taught
2 by my U.S. Patent Number 6,011,466 can best be seen in **FIGURE 1A**,
3 which is a diagrammatic side elevational view of my prior art
4 sealed golf ball, and as such, will be discussed with reference
5 thereto.

6 The sealed golf ball **50** includes a shock absorber **52** that is
7 contained in the golf ball **50**.

8 The sealed golf ball **50** further includes a coil-shaped
9 miniature receiver antenna **54** that is contained in the golf ball **50**
10 and receives a first signal **56**.

11 The sealed golf ball **50** further includes a miniature wireless
12 receiver **58** that is contained in the golf ball **50**, is in electrical
13 communication with, and receives the first signal **56** from, the
14 coil-shaped miniature receiver antenna **54**, and generates a second
15 signal **60** in response thereto.

16 The sealed golf ball **50** further includes an audible acoustic
17 generator **62** that is contained in the golf ball **50**, is in
18 electrical communication with the miniature wireless receiver **58**,
19 receives the second signal **60** from the miniature wireless receiver
20 **58**, and generates a series of audible beeps **64** through the golf

1 ball **50** and out into the ambient **66** for hearing by a person seeking
2 the golf ball **50**.

3 The sealed golf ball **50** further includes a rechargeable
4 micro-battery **68** that is contained in the golf ball **50** and is in
5 electrical communication with, and powers, the miniature wireless
6 receiver **58** and the audible acoustic generator **62**.

7 The sealed golf ball **50** further includes a transmitter housing
8 **70** for carrying by the person seeking to locate the golf ball **50**.

9 The sealed golf ball **50** further includes a wireless
10 transmitter **72** that is contained in the transmitter housing **70** and
11 selectively generates the first signal **56**.

12 The sealed golf ball **50** further includes a transmitter antenna
13 **74** that is disposed on the transmitter housing **70**, is in electrical
14 communication with the wireless transmitter **72**, and transmits the
15 first signal **56**.

16 The sealed golf ball **50** further includes a switch **76** that is
17 disposed on the transmitter housing **70** and is in electrical
18 communication with the wireless transmitter **72**, and when activated,
19 causes the wireless transmitter **72** to generate the first signal **56**,
20 and the transmitter antenna **74** to transmit the first signal **56**,

1 which is received by the coil-shaped miniature receiver antenna **54**,
2 which sends the first signal **56** to the miniature wireless receiver
3 **58**, which sends the second signal **60** to the audible acoustic
4 generator **62**, which generates the series of audible beeps **64**, which
5 provides an audible trail to the golf ball **50** to be located.

6 It is apparent that numerous innovations for object locating
7 devices have been provided in the prior art that are adapted to be
8 used. Furthermore, even though these innovations may be suitable
9 for the specific individual purposes to which they address,
10 however, they would not be suitable for the purposes of the present
11 invention as heretofore described.

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SUMMARY OF THE INVENTION

2 **ACCORDINGLY, AN OBJECT** of the present invention is to provide
3 a system for locating a golf ball that avoids the disadvantages of
4 the prior art.

5 **ANOTHER OBJECT** of the present invention is to provide a system
6 for locating a golf ball that is simple to manufacture.

7 **STILL ANOTHER OBJECT** of the present invention is to provide a
8 system for locating a golf ball that is simple to use.

9 **BRIEFLY STATED, YET ANOTHER OBJECT** of the present invention is
10 to provide a system for locating a golf ball on a golf course by a
11 golfer using a golf cart. The system includes a signal generator,
12 a microchip, and an amplifier. The signal generator is connected
13 to a portable computer on the golf cart and generates a first
14 signal. The microchip is disposed in the golf ball and receives
15 the first signal and generates a second signal in response thereto
16 that is received by a base computer which triangulates the location
17 of the golf ball off the locations of fixed objects on the golf
18 course and generates a third signal in response thereto that is
19 received by the portable computer which displays the location of
20 the golf ball relative to the location of the golf cart already
21 displayed. The amplifier is operatively connected to the portable

computer and receives and amplifies the second signal that is to be received by the base computer.

The novel features which are considered characteristic of the present invention are set forth in the appended claims. The invention itself, however, both as to its construction and its method of operation, together with additional objects and advantages thereof, will be best understood from the following description of the specific embodiments when read and understood in connection with the accompanying drawing.

BRIEF DESCRIPTION OF THE DRAWING

The figures of the drawing are briefly described as follows:

FIGURE 1 is a block diagram of a typical prior art system for locating a golf cart;

FIGURE 1A is a diagrammatic side elevational view of my prior art sealed golf ball;

FIGURE 2 is a block diagram of a first embodiment of the present invention in use;

FIGURE 3 is a block diagram of the portable computer with display of the first embodiment of the present invention;

FIGURE 4 is a block diagram of the golf ball of the first embodiment of the present invention; and

FIGURE 5 is a diagrammatic side elevational view of a second embodiment of the present invention.

LIST OF REFERENCE NUMERALS

UTILIZED IN THE DRAWING

Prior Art

10 system for locating golf cart **12** on golf course **14** by golfer hitting golf ball **16**

12 golf cart on golf course **14**

14 golf course

18 fixed objects on golf course **14**

20 base computer of golf course **14** preferably located in club house **22** on golf course **14**

22 club house on golf course **14**

24 GPS

26 portable computer on golf cart **12** on golf course **14**

28 display of portable computer **26** on golf cart **12** on golf course **14**

50 sealed golf ball

52 shock absorber

54 coil-shaped miniature receiver antenna

56 first signal

58 miniature wireless receiver

60 second signal

62 audible acoustic generator

1 **64** series of audible beeps for hearing by person seeking sealed
2 golf ball **50**
3 **68** rechargeable micro-battery
4 **70** transmitter housing for carrying by person seeking to locate
5 sealed golf ball **50**
6 **72** wireless transmitter
7 **74** transmitter antenna
8 **76** switch

First Embodiment of Present Invention

10 **30** system of present invention for locating golf ball **32**
11 **32** golf ball
12 **34** signal generator for operatively connecting to portable
13 computer **26** generating first signal **36** when activated
14 **36** first signal generated when signal generator **34** is activated
15 **38** microchip
16 **40** second signal generated by microchip **38** for receiving by base
17 computer **20**
18 **42** third signal generated by base computer **20** for receiving by
19 portable computer **26**
20 **44** amplifier for operatively connecting to portable computer **26**

Second Embodiment of Present Invention

- 2 **80** improved sealed golf ball of present invention
- 3 **82** conventional cellular telephone
- 4 **84** microchip

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DETAILED DESCRIPTION OF
THE PREFERRED EMBODIMENT

3 Referring now to the figures, in which like numerals indicate
4 like parts, and particularly to **FIGURE 2**, which is a block diagram
5 of the present invention in use, a first embodiment of the system
6 of the present invention is shown generally at **30** for locating a
7 golf ball **32**.

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The configuration of the system **30** can best be seen in **FIGURES**
2-4, which are, respectively, again a block diagram of the present
invention in use, a block diagram of the portable computer with
display of the present invention, and a block diagram of the golf
ball of the present invention, and as such, will be discussed with
reference thereto.

The system **30** comprises a signal generator **34** for operatively
connecting to the portable computer **26**, and which generates a first
signal **36** when activated.

The system **30** further comprises a microchip **38** that is
disposed in the golf ball **32** and receives the first signal **36** from
the signal generator **34** and generates a second signal **40** in
response thereto for receiving by the base computer **20** which

1 triangulates the location of the golf ball **32** off the locations of
2 the fixed objects **18** and generates a third signal **42** in response
3 thereto for receiving by the portable computer **26** which displays on
4 the display **28** thereof the location of the golf ball **32** relative to
5 the location of the golf cart **12** already displayed on the display
6 **28** thereof so as to allow the golfer to locate the golf ball **32**.

7 The system **30** further comprises an amplifier **44** for
8 operatively connecting to the portable computer **26**, and which
9 receives and amplifies the second signal **40** from the microchip **38**
10 for receiving by the base computer **20**.

11 A second embodiment of the present invention is an improvement
12 upon my U.S. Patent Number 6,011,466 discussed in the BACKGROUND OF
13 THE INVENTION *supra*.

14 The improved sealed golf ball **80** can best be seen in **FIGURE 5**,
15 which is a diagrammatic side elevational view of a second
16 embodiment of the present invention, and as such, will be discussed
17 with reference thereto.

18 The improvement comprises the transmitter housing **70**, the
19 wireless transmitter **72**, and the transmitter antenna **74** being a
20 conventional cellular telephone **82**.

1 The improvement further comprises a microchip **84** for being
2 powered by the rechargeable micro-battery **68**, for disposing in the
3 golf ball **80**, and for activating the audible acoustic generator **62**
4 when the conventional cellular telephone **82** is activated and a
5 preset code is entered therein.

6 It will be understood that each of the elements described
7 above, or two or more together, may also find a useful application
8 in other types of constructions differing from the types described
9 above.

10 While the invention has been illustrated and described as
11 embodied in a system for locating a golf ball, however, it is not
12 limited to the details shown, since it will be understood that
13 various omissions, modifications, substitutions and changes in the
14 forms and details of the device illustrated and its operation can
15 be made by those skilled in the art without departing in any way
16 from the spirit of the present invention.

17 Without further analysis, the foregoing will so fully reveal
18 the gist of the present invention that others can, by applying
19 current knowledge, readily adapt it for various applications
20 without omitting features that, from the standpoint of prior art,
21 fairly constitute characteristics of the generic or specific
22 aspects of this invention.